



Tsunamis vs meteotsunamis at the Balearic Islands

Sebastian Monserrat (1,2) and Maria-del Mar Vich (1)

(1) Universitat de les Illes Balears, Fisica, Palma de Mallorca, Spain (s.monserrat@uib.es), (2) IMEDEA (UIB-CSIC)

Tsunamis and meteotsunamis have a very similar behaviour near the coast, being both strongly affected by the topography. Despite they have a clear different origin: seismic (tsunamis) and atmospheric disturbances (meteotsunamis), once generated, they present many similarities, particularly when recorded at the coast due to the strong influence of coastal resonance effects. But propagation over the shelf may be somehow different. The long wave generated after the earthquake propagates freely without any additional forcing and the meteotsunami requires some resonance process between the atmosphere and the ocean in order to optimally transfer the atmospheric energy into the ocean. Meteotsunamis are a very common phenomenon in the region of the Balearic Islands (western Mediterranean) where they are locally known as 'rissaga' but this region is not sismically active and tsunamis only occur in very rare occasions. However, On 21 May 2003 a submarine earthquake occurred near Algiers producing a tsunami that propagated northward and reached the Balearic Islands and the Levantine coast of the Iberian Peninsula. This event represents a unique opportunity to compare tsunami and meteotsunami characteristics in this region. We separate source and topographic effects from coastal measurements during the tsunami generated in May 2003 and during some meteotsunamis recorded in the region this year. Available data allow to investigating the response of different events at the same coastal station and to compare them with the behaviour of the same event at nearby stations.